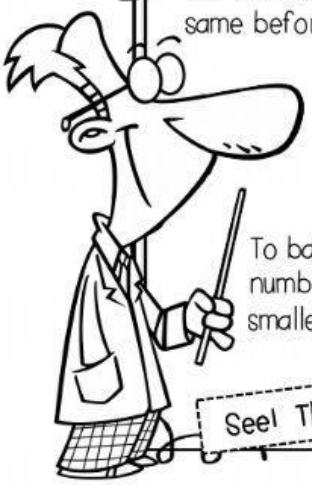
Name _____ Date _____ Section _____

Introduction to Balancing Equations



The Law of Conservations of Mass tells us that the total amount of matter is neither created nor destroyed during any physical or chemical change. Therefore, the mass stays the same before and after a chemical reaction.

Chemical equations demonstrate this principle because they are always balanced. The total mass of the reactants must equal the total mass of the products. You can check to see if an equation is balanced by counting up the number of atoms- it has to be the same on each side of the equation.

To balance an equation, you can adjust the coefficients until there are the same number of each type of atom on both sides. You are never allowed to change the smaller numbers that make up the chemical formulas.

See! This is balanced!

$N_2 + 3\,F_2 \rightarrow 2\,NF_3$

2 nitrogens and 6 fluorines on this side...

and 2 nitrogens and 6 fluorines on this side!

Practice

Balance each equation using the law of conservation of mass. There is a chart above each problem to help you. Use the chart to make sure that you have the same number of atoms on each side.

First- Count up the number of atoms you currently have. Write that number in the chart for both sides of the equation.

Second- If the numbers don't match, try adjusting the coefficients one at at time. Make sure to change the number in the chart.

Remember- you can't change the formulas!

1.

	Reactants	Products
H		
O		

____ H_2 + ____ O_2 → ____ H_2O

2.

	Reactants	Products
P		
O		

____ P_4 + ____ O_2 → ____ P_2O_3

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